

In fact I can hardly give a stronger confirmation of the rarity, and both the general character and universality of the phenomenon on that occasion, for all parts of Great Britain than by concluding with the following extract from a letter by Prof. A. S. Herschel of Newcastle-on-Tyne, dated December 25:—

"I saw," he writes "(and photographed from a window, but lost by over-exposing the plate, unfortunately), the iridescent clouds of Thursday's sunset you describe in NATURE, and nothing more beautiful than the diamond-beetle *dytra*, or *Papilio-pario* wing-scales, which glittered in the western sky could, as you wrote, be possibly *imagined*! They were seen also in the south of England (Kent) between 2 and 3 o'clock on the same afternoon.

"Mr. N. here says, in resumption of what they were probably, that he often sees such coloured fringes and colour-bows, in circles too, on clouds near and round the sun, by looking at the sun's reflection and that of the clouds just round him, in the plate-glass window of his drawing-room.

"So no doubt it was a good instance only of a common sight, but an instance yet, I should say, not to be seen much oftener than once or twice in a century!"

To that opinion I do not presume to add one word.

C. PIAZZI SMYTH

15, Royal Terrace, Edinburgh, January 28

Manx Cats

WITH reference to Mr. Francis Galton's remarks in NATURE on Manx cats, I should like to ask whether any of your readers can assist me. Some little time ago I imported a few Manx cats with a view of trying experiments with them in crossing. But, as Mr. Galton says, it is difficult to get cats to breed in confinement, and of course it is of no use for the purpose of my experiment to allow the animals to roam at large among ordinary cats. Acting upon Mr. Galton's suggestion, therefore, I write to ask whether any of your readers happen to know of any island within a reasonable distance from town where a breed of Manx cats could be established. It is not necessary that the island should be a marine one. Any piece of ground insulated by fresh water would do equally well, provided it were of moderate size and not already tenanted by cats. If any of your readers should know of such a place I should be greatly obliged to them for a reference to its locality.

I may take this opportunity of further inquiring whether any of your readers would care to lend me, or tell me where to procure, a really good talking parrot for the purposes of systematic observation.

GEORGE J. ROMANES

Cross-breeding Potatoes

IT is well that your correspondent, Mr. James Melvin, has called attention to the dubious and erroneous ideas which now largely prevail on this subject. There is no reason to suppose that hybrids arising from *Solanum Maglia* will be disease-proof, for *S. Maglia*, like *S. tuberosum*, is one of the known hosts of the potato fungus, *Peronospora infestans*.

The errors appear to have arisen from the unfortunate conclusions,—“Economic Suggestions,” given by Mr. J. G. Baker in his otherwise admirable paper laid before the Linnean Society, April 1884, p. 505.

Mr. Baker thinks that, because *S. Maglia* comes from humid positions in America, it will succeed in Britain better than *S. tuberosum*, a plant of the dry hills. The correctness of this idea I should very much question, the great strongholds of fungi being humid places. The fact of the habitat is an important one, but the deduction made from it is questionable.

Mr. Baker says the potato plant in its present tuber-bearing state is in a “disorganised and unhealthy condition.” This view also is very much open to question: there is no evidence of disorganisation and unhealthiness in cultivated potatoes. Cultivated potato plants are no more disorganised and unhealthy than are any of our other cultivated kitchen garden plants, fruits, flowers, or domestic animals, including man himself. The notion that disorganised and unhealthy plants are “fitting subjects for the attacks of fungi and aphides” is a mistake, for fungi (*i.e.* parasitic fungi,—the fungi Mr. Baker has in view) do not grow upon “disorganised and unhealthy plants;” they require healthy plants on which to grow. Of course vegetable parasites require for their sustenance the vigorous elaborated juices of healthy plants, not the vitiated juices of “disorganised and unhealthy” ones.

Leaving theory for fact, I may point out that in the published results of experiments made by Dr. Hogg last autumn, both *S. Maglia* and *S. Jamesii* were badly diseased with parasitic fungi, and in Mr. Thomas Laxton's published experiments nearly the whole of the plants of *S. Maglia* and *S. Commersoni* (the two species specially recommended by Mr. Baker), as well as *S. Jamesii*, “disappeared from disease.”

A year or two ago Mr. John King, British Vice-Consul, Carrizal, Bajo, Chili, sent to this country twenty stones of potatoes from positions in Chili where, during an experience of more than twenty years, the disease of potatoes had never been seen. It was perfectly unknown to the growers there.

These twenty stones of potatoes were planted in different parts of Great Britain and were a failure. They fell before *Peronospora infestans* quite as readily as did our own common potatoes.

No doubt good will arise from the experiments now being carried out, but not in the way generally assumed. The only theme for regret is the publication at the outset of (as I think) curiously mistaken deductions. These deductions, coming from such an excellent botanist as Mr. Baker, have led potato growers very much astray.

WORTHINGTON G. SMITH

Earthquake

THE annexed copy extracts from letter dated Kingston, Jamaica, January 8, from Capt. Spray, of our s.s. *Maroon*, will no doubt interest you. Are we right in thinking that the shock he felt was probably connected with the Spanish earthquakes?

J. G. S. ANDERSON

5, Fenchurch Avenue, London, E.C., January 27

Extract of Letter from Capt. Spray

Kingston, January 8

On the morning of December 22, 1884, in lat. 36° 48', long. 19° 25' W., we felt a shock as if the ship was grinding over a reef, although there was no difference in speed of engines; stopped and made every examination, but found no cause. My opinion it was a shock of earthquake, as some years before, nearly in the same place, I felt one more severe than the last.

An Instance of “Protective Resemblance”

IN Mr. Johnston's interesting account of the ascent of Mount Kilimanjaro, in Equatorial Africa, which appears from time to time in the *Daily Telegraph*, occurs a passage which seems deserving of being rescued from the comparative oblivion of the pages of a daily newspaper. It will be found in the number of the 16th inst., and is as follows:—“Other noticeable features in the scene were the tall red ant hills and, strange imitation, the tall red antelopes, a species of hartebeest, resembling faintly in shape the form of a giraffe with sloping hind-quarters, high shoulders, and long neck. Being a deep red-brown in colour, and standing one by one stock-still at the approach of the caravan, they deceived even the sharp eyes of my men, and again and again a hartebeest would start up at twenty yards distance and gallop off, while I was patiently stalking an ant-hill, and crawling on my stomach through thorns and aloes, only to find the supposed antelope an irregular mass of red clay.”

New University Club, January 20

J. C. G.

Hibernation

WILL you allow me to invite attention of anthropologists and zoologists to the very remarkable (and to me surprising) statement contained in the article “Hibernation” (W. F. Kirby), last edition of the “*Encyclopædia Britannica*.” Reference is there made to a work by Mr. Baird, entitled “*Human Hybernation*” (1850), giving examples on “unimpeachable authority” of the powers of religious ascetics in India of throwing themselves into a state closely resembling hibernation for an indefinite period; and quoting a case of a Fakir who was actually buried alive at Lahore in 1837 in presence of Runjeet Sing and Sir Charles Wade, and was dug up and restored to consciousness several months afterwards! Now, it is ascertained that hares can exist for weeks together buried in the snow, and if this power of hibernation can be developed at will, might it not also be so on necessity, and explain the former existence of the Siberian mammoth, through the winter months: these animals might, as winter approached, have withdrawn to sheltered hollows, where

they were eventually snowed up and covered with snow. This possibility may have before been started, but seems to me to be reasonable and probable.

K. BUSK

Athenæum, February 2

Our Future Clocks and Watches

IF clocks are to strike at all, surely once per hour is insufficient, while four times is excessive; the high hour-numbers even now are inconvenient to count, and with the quarters heard alone it is possible to make a mistake of an hour. I cannot but think, then, on the whole, that the necessities of ship-life have long driven mariners into the very best method, free from all difficulties, and that, whatever our way of noting hours, we could do no better than adopt the naval half-hour strikings for land-clocks, recommencing with each four-hour watch. Some confusion with the existing ways, as long as they survive, is inevitable, and equal whatever change is made.

A mistake of four hours is just as unlikely as one of twelve. We should probably soon find names for the different four-hour divisions; for example, we might denote each half-hour by some letter or cypher.

EDWARD L. GARBETT

THE LIFE-HISTORY OF THE LYCOPODIACEÆ

THE area within which really notable discoveries are possible—at any rate amongst the higher plants—in the field of vegetable morphology is becoming very circumscribed. For some time the complete life-history of the *Lycopodiaceæ* has been a missing chapter in our text-books. Hofmeister, like others, had unsuccessfully sown the spores, and he could only speculate as to the probability of their producing—if the proper conditions could be known—a prothallium like ferns. And Spring, the monographer of the group, had hazarded the extraordinary theory that the existing representatives of the group were only represented by male plants, the females having been lost in some remote geological catastrophe.

De Bary made in this, as in so many other fields, the first real advance. He described in 1858 the early stages of the germination of the spores of *Lycopodium inundatum*. But just as Hofmeister had failed to get the spores to germinate at all, so De Bary failed to get the development of the prothallium to advance beyond a very early stage. Thus matters stood till 1872, when Fankhauser had the good fortune to find, in a botanical excursion, young plants of *Lycopodium annotinum*, still united to their parent prothallium.

For my own part, I have always felt that it might be the chance of any wide-awake observer to turn the next unread page in this curiously reserved history. And I have never failed to remind the younger botanists who have consulted me as to a promising direction for work that this was a possibility they should never lose sight of. Within the last few days, however, two fresh contributions to the subject have come into my hands.

The first number of the *Botanisches Centralblatt* for this year contains a paper by Bruchmann, who has, if I mistake not, already done some good work in the vegetative morphology of Lycopodium. He has had the good luck to repeat Fankhauser's happy find, and to have come across, at the end of August last, living prothallia of the same species.

But the paper¹ which will mark its epoch in the history of Lycopodium is that for a separate copy of which I am indebted to my friend, Dr. Treub, the accomplished director of the renowned Botanic Garden at Buitenzorg in Java. Six years ago, when he had no thought that he would ever be able to prosecute botanical research in the tropics, he also made, as so many others have done, unsuccessful attempts to obtain the development of Lycopodium spores. On his arrival at Buitenzorg, he lost no time in endeavouring to find the prothallia of tropical species. He seems to have all but succeeded in dis-

covering those of *Lycopodium cernuum*—but for an accidental circumstance which threw him off the scent—in the first year of his residence there. Subsequently, he sowed the spores on the trunks of trees, and after a delay which led him to abandon any hope of success, he obtained satisfactory results from one of the sowings. Now he is acquainted with the prothallia of three species of Lycopodium, and hopes to be able to describe even a fourth.

In the present paper, which is illustrated with nine admirable plates, Dr. Treub gives an exhaustive account of the prothallium of *Lycopodium cernuum*. It is curious to observe, however, that in artificial cultures he did not succeed in carrying the development further than De Bary had done some time ago with *L. inundatum*. Fortunately, prothallia which he discovered under spontaneous conditions of development exactly fitted in where the others stopped.

The adult prothallium is a very singular structure, consisting of a sort of short cylindrical axis, half immersed in the soil at one end, where it is furnished with root-hairs. The upper extremity bears a tuft of small leaf-like lobes. The archegonia and antheridia are found on the upper part of the cylindrical axis, forming a kind of ring or crown near the tuft of lobes. The prothallium therefore presents a type morphologically more differentiated than is met with elsewhere amongst the vascular cryptogams. While this is the case with the sexual generation (oophore), the spore-bearing generation (sporophore) in its embryonic stage is less differentiated than is the case, for example, in the fern. The embryonic root is suppressed, and the whole embryo, which is wholly parenchymatous, approximates in its morphological characters to those of the prothallium.

W. T. THISELTON DYER

JOHN GWYN JEFFREYS

IT is with much regret we have to announce the death of this veteran conchologist. Dr. Gwyn Jeffreys, who was in his usual health the day before, and in the evening attended at the lecture given by his son-in-law, Prof. Moseley, at the Royal Institution, was seized on Saturday morning, January 24, with a fit of apoplexy, and at five o'clock on the same afternoon passed peacefully away. He was the last, or almost the last, of a band of marine zoologists of a former generation who had been his friends. Dilwyn, Cocks, and Couch; Fleming, Gray, Forbes, Alder, and Albany Hancock; Johnston and William Thompson; Barlee and Waller are names of the past.

Dr. Gwyn Jeffreys was born at Swansea on January 18, 1809, and had thus just completed his seventy-sixth year. While a boy he showed a taste for natural history, collecting the insects and shells of South Wales. When only nineteen he contributed a paper to the Linnean Transactions, "*A Synopsis of the Pneumobranchous Mollusca of Great Britain*," and from that date until the present time he has been adding by his writings to our knowledge of the molluscan fauna of Europe and the North Atlantic. His most important works are: "*British Conchology*," in five volumes, and a series of papers (unfortunately unfinished) in the Proceedings of the Zoological Society, on "*The Mollusca of the 'Lightning' and 'Porcupine' Expeditions, 1868-70*." At the age of twenty he was elected a F.L.S., and in 1840 F.R.S., and he was an honorary LL.D. of St. Andrews. He was one of the most regular members of the Royal Society Club, and took great interest in the meetings of the British Association, which he almost always attended, taking a more active part in 1848, when Local Treasurer at the first meeting at Swansea, in 1880, when a Vice-President at the last meeting held in the same town, and in 1877, when President of the Biological Section. For many

¹ *Ann. du Jardin Botanique de Buitenzorg*, vol. iv. pp. 107-138, tt. ix.-xvii.